



DN1 Distribution patterns and species composition of demersal fishes in relation to habitat variability on the mid-Atlantic Ridge

PIs: Franz Uiblein (Austria), Ingvar Huse (Norway)

Aims:

1. Analyse and describe demersal fish species composition in the three MAR-ECO Sub-areas, and provide material and supplementary data on any new species or new records.
2. Map and model species distributions, and compare these with patterns in adjacent areas of the North Atlantic.
3. Compare assemblage structure among different areas, including also information from scattered seamounts and continental slopes on either side of the MAR.
4. Relate the observed patterns to physical features, such as bathymetry and hydrography.



Hypotheses:

- *On the basin-wide scale, the MAR has a fish fauna that is not a simple extension of that found on adjacent continental slopes.*
- *At the scale of the ridge itself, climatically-induced latitudinal patterns in surface productivity may lead to latitudinal patterns in fish assemblage structure paralleling those along the continental slopes.*
- *At the scale of meso- or microhabitats, topography has the strongest effects on fish co-occurrence patterns, diversity, and abundance.*

Strategy: Acoustic corridor and transect sampling in the three MAR-ECO Sub-areas, and also lander observations and submersible observations.

Technology:

- **Hydroacoustics** (using hull, vehicle and lander-mounted transducers, also multi-beam for habitat mapping).
- **Remotely Operated and Autonomous Vehicles** (ROV "Aglantha", AUV "Hugin"), **benthic landers**.
- **Manned submersibles MIR1 and 2.**
- **Depth stratified bottom trawl sampling, and sampling with static gears** (longline, traps, trammel nets).

Deliverables:

- New information on **abundance and distribution patterns** of ridge-associated demersal fish based on a combined effort using state-of-the art acoustics, optics, depth-stratified samplers and direct observation from submersibles and landers. Comparative analyses with slope-associated faunas.
- **Discoveries and descriptions** of new fish species and **community structure information** determined by top ichthyologists.
- New information for assessing impacts of fisheries on community structure and habitats.
- **Papers** published in high-ranking science journals, and **popular presentations** raising the public awareness of the fish communities of a remote area of the ocean (website, journals, press, books, exhibitions, school network)

Schedule: Preparation of field work: 2002-2003, Sampling and observation at sea: 2003-2005, Analysis and dissemination, and provision of data to OBIS: 2005-2008.

Commitments: Ship-time on Icelandic, Russian and Norwegian vessels in 2003-2004, MIR submersible dives 2003, OASIS Project activities at Sedlo Seamount, IMR Norway internal gear grant, labour and other costs.

Additional needs: DN1 Post-doc, museum curating costs, travel cost, data analysis.

Proposals submitted: UK Natural Environment Research Council (Prof. Priede).

Partners: J. Galbraith (USA), Gui Menezes, Manuel Biscoito (Portugal), Sergio Iglesias, Pablo Duran Muñoz (Spain), Pascal Lorange, Sami Souissi (France), John D. M. Gordon, Monty Priede (UK), Maurice Clarke (Ireland), Peter Rask Møller (Denmark), Jakup Reinert, Eydfinn Magnusson (Faroe Islands), Thorsteinn Sigurdsson (Iceland), Odd Aksel Bergstad, Agnes Gundersen, Inge Fossen, Aage Hoines, Kristin Helle, Ingvar Byrkjedal (Norway), Uwe Piatkowski (Germany), Jerzy Janusch (Poland), Vladimir Vinnichenko, Andrey Dolgov, Alexei Orlov, Efim Gerber, Yuri Shcherbachev (Russia).